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EXAMINER	
EWART, JAMES D	
ART UNIT	**PAPER NUMBER**
2683	

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/821,385	LAW ET AL.	
	Examiner	Art Unit	
	James D. Ewart	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14-18,20-24,31 and 32* is/are rejected.

7)☒ Claim(s) *13,19 and 25-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09 April 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

1. Figure 8 is objected to because the drawing shows wireless network A (WNA) and wireless network B (WNB) which is confusing since WNA is a desktop computer and WNB is a television and are not networks but are devices as indicated in the specification. Examiner suggest modifying the drawing to indicate wireless network device A and wireless network device B. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. Paragraph 0050 310 and 320 are wireless network devices but are also referred to as wireless networks in 0050. Devices are also referred to as networks in 0052 and 0059. In 0055, Figure 6 is referred to as Figure 5.

3. In figure 4 it appears that the wireless mobile unit determines its location based on the signal strengths it receives and from the known locations of the stationary wireless devices, but this is not clear in the specification. This is location determination for a single device, however claims 4,5 and 20 indicate monitoring motion of a plurality of wireless network devices. This could not be accomplished with the embodiment of figure 4 and the Examiner does not find in the specification the sending of the signal strengths to a computer in which the modules are located. The discussion of figure 8 states that WNA and WNB are relatively fixed and can provide reference information, but the discussion does not indicate where the reference information and signal strength measurements are sent. Applicant teaches in 0055 and Figure 6, the distances between devices are determined based on signal strength between the devices, but there is no indication of sending these signal strengths to a computer with the modules for determining location and motion. It's unclear what applicant is teaching. In figure 8, in which there are references WNA and WNB it appears that what Applicant is doing is triangulation to determine the location and motion of a device and in figure 6, there are no references but the distance between each device is determined to provide the relative location of each device and then there are of course the modules that reside in a computer but it is unclear where the modules

are located i.e. a stationary or nonstationary computer, how the measurements get to the modules and the differences between the modules of figure 6 and figure 8.

Claim Objections

4. Claim 2 is objected to because of the following informalities: the claim states: "communicating wirelessly according to a layered protocol with other networks" and it should read "with other network devices". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-2 are rejected under 35 USC 103(a) as being unpatentable over Gray et al. (U.S. Patent Publication No. 2003/0043073) in view of MacDonald (U.S. Patent No. 5,732,354) and further in view of Chandra et al. (U.S. Patent Publication No. 2005/0143119).

Referring to claim 1, Gray et al. teaches a system for detecting the locations and/or motions of wireless network devices communicating within a wireless network (0002), comprising: measuring the signal strength between a first network device and other network devices (0035 and Figure 1); and means for detecting the distances between said first network

device and the other network devices in response to signal strength information (0010,0023 & 0041) to determine the positions of wireless network devices and/or the motions of one network device in relation to the other network devices (0056), but does not teach a first network device configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with at least two other network devices. MacDonald teaches a first network device configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with at least two other network devices (Column 6, Lines 24-53). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al with the teaching of MacDonald teaches a first network device configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with at least two other network devices to determine the location of the mobile phone (Column 6, lines 24-26). Gray et al and MacDonald teach the limitations of claim 1, but do not teach wherein the radio signal is a beacon frame. Chandra et al teaches wherein the radio signal is a beacon frame (0046). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al and MacDonald with the teaching of Chandra et al wherein the radio signal is a beacon frame to provide power information (0018). Examiner equates other wireless network devices with access points.

Referring to claim 2, Gray et al. further teaches a computer configured for communicating with other wireless network devices (Figure 1; 115 and 0034); and programming

configured for execution on said computer for, communicating wirelessly according to a layered protocol with other network devices (Figure 1; 115 and 0034), supporting a media access control (MAC) layer within said layered protocol (0059), detecting the distances between said first network device and the other network devices in response to signal strength information (0010 and 0023), determining the positions of wireless network devices and/or the motions of one network device in relation to the other network devices (0056).

6. Claims 3-8,14-16,20,21,31 and 32 are rejected under 35 USC 103(a) as being unpatentable over Gray et al., MacDonald and Chandra et al. and further in view of Gorday et al.(U.S. Patent Publication No. 2004/0192331).

Referring to claim 3, Gray et al. further teaches generating distances between a plurality of network devices based on signal strength information and determining relative geographic locations of devices (0056), but does not teach wherein the relative geographic locations are defined by vectors between devices. Gorday et al teaches wherein the relative geographic locations are defined by vectors between devices (0012 and Figure 1). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al., MacDonald and Chandra et al. with the teaching of Gorday et al wherein the relative geographic locations are defined by vectors between devices to determine a network of devices for exchanging information (0012)

Referring to claim 4, Gray et al. further teaches a motion monitor module configured for monitoring proximity motion of a plurality of wireless network devices in the wireless network

system (0012); a signal strength monitoring module configured for monitoring the signal strength between communicating network devices within said plurality of wireless network devices (Figure 1; 160); a module for generating distances between a plurality of network devices based on signal strength information (0010 and 0023) and determining relative geographic locations of devices (0056); and a proximity motion sensor module for detecting the relative motion of one or more of said plurality of wireless network devices communicating on the wireless network (0056), but does not wherein the relative geographic locations are defined by vectors between devices. Gorday et al teaches wherein the relative geographic locations are defined by vectors between devices (0012 and Figure 1). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al., MacDonald and Chandra et al. with the teaching of Gorday et al wherein the relative geographic locations are defined by vectors between devices to determine a network of devices for exchanging information (0012).

Referring to claim 5, Gray et al. teaches a system for detecting two or three-dimensional motion of wireless network devices communicating within a wireless network (0002), comprising: measuring the signal strength between a first network device and other network devices (0035 and Figure 1); a motion monitor module configured for monitoring proximity motion of network devices within the plurality of at least three wireless network devices in the wireless network (0012); a signal strength monitoring module configured for monitoring the signal strength between communicating network devices within said plurality of wireless network devices (Figure 1; 160); a module for generating distances between a plurality of

network devices based on signal strength information (0010 and 0023) and determining relative geographic locations of devices (0056); and a proximity motion sensor module for detecting the relative motion of one or more of said plurality of wireless network devices communicating on the wireless network (0056), but does not teach wherein the relative geographic locations are defined by vectors between devices. Gorday et al teaches wherein the relative geographic locations are defined by vectors between devices (0012 and Figure 1). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al. with the teaching of Gorday et al wherein the relative geographic locations are defined by vectors between devices to determine a network of devices for exchanging information (0012). Gray et al and Gorday et al teach the limitations of claim 5 but do not teach a first network device configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with at least two other network devices. MacDonald teaches a first network device configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with at least two other network devices (Column 6, Lines 24-53). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al and Gorday et al. with the teaching of MacDonald of a first network device configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with at least two other network devices to determine the location of the mobile phone (Column 6, lines 24-26). Gray et al, Gorday et al and MacDonald teach the limitations of claim 5, but do not teach wherein the radio signal is a beacon frame. Chandra et al teaches wherein the radio signal is a beacon frame (0046). Therefore at

the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al, Gorday et al and MacDonald with the teaching of Chandra et al wherein the radio signal is a beacon frame to provide power information (0018). Examiner equates other wireless network devices with access points.

Referring to claim 20, Gray et al. teaches detecting proximity between a plurality of wireless network devices communicating over a wireless network system (0002), comprising: measuring the signal strength between a first network device and other network devices (0035 and Figure 1), determining a relative two-dimensional or three-dimensional coordinate representation for the position of each of said plurality of wireless network devices (0056); determining a precise distance traveled position of a particular wireless network device in motion with respect to the other wireless network devices communicating on the wireless network (0021); and generating motion sensor outputs responsive to the coordinate representation of said plurality of wireless network devices for detecting the motion of any particular one of said plurality of said wireless network devices with respect to the other wireless network devices communicating on the wireless network (0020 and 0056), but does not teach wherein the relative geographic locations are defined by vectors between devices. Gorday et al teaches wherein the relative geographic locations are defined by vectors between devices (0012 and Figure 1). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al. with the teaching of Gorday et al wherein the relative geographic locations are defined by vectors between devices to determine a network of devices for exchanging information (0012). Gray et al and Gorday et al teach the

limitations of claim 20 but do not teach a network devices configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with other network devices. MacDonald teaches network devices configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with other network devices (Column 6, Lines 24-53). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al and Gorday et al. with the teaching of MacDonald of network devices configured for wirelessly communicating information via a radio signal wherein the information includes measured signal strength with other network devices to determine the location of the mobile phone (Column 6, lines 24-26). Gray et al, Gorday et al and MacDonald teach the limitations of claim 5, but do not teach wherein the radio signal is a frame. Chandra et al teaches wherein the radio signal is a frame (0046). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al, Gorday et al and MacDonald with the teaching of Chandra et al wherein the radio signal is a frame to provide power information (0018). Examiner equates other wireless network devices with access points.

Referring to claim 6, Gorday et al teaches wherein said vector coordinates generation module is configured for calculating distance vectors between a plurality of wireless network devices based on signal strength information (0012 and 0016).

Referring to claim 7, Gorday et al teaches wherein said vector coordinates generation module is configured for calculating a relative two-dimensional or three-dimensional coordinate representation for the position of each of said plurality of wireless network devices (Figure 1).

Referring to claims 8 and 21, Gray et al. further teaches wherein a module is configured for calculating a precise distance traveled position of a particular wireless network device in motion with respect to the other wireless network devices communicating on the wireless network (0021). Gorday et al teaches using a vector coordinates generation module (0012 and 0016).

Referring to claim 14, Gray et al. further teaches wherein said signal strength motion sensor module is configured for sensing movement by a particular wireless network device with respect to the other wireless network devices communicating in the wireless network (0056).

Referring to claim 15, Gray et al further teaches wherein said signal strength monitoring module is configured for calculating distance changes between each of the plurality of wireless network devices relative to the other devices communicating in the wireless network (0021 and 0056).

Referring to claim 16, MacDonald et al further teaches wherein said signal strength monitoring module is configured for continuously monitoring radio signal transmitted by a sending wireless device to a receiving wireless device communicating in said wireless network at

a predetermined transmission interval (Column 4, Lines 51-55). IS-54 and IS-136 are standards which involve taking signal strength measurements and using predetermined transmission intervals. Chandra et al teaches wherein the radio signal is a beacon frame

Referring to claim 31, Gray et al further teaches wherein said determining of the signal strength is performed within a selected proximity range (0006 and 0012).

Referring to claim 32, Gray et al further teaches wherein said selected proximity range comprises a range which is predetermined for said wireless network (0006 and 0012).

7. Claims 9-12 and 22-24 are rejected under 35 USC 103(a) as being unpatentable over Gray et al., MacDonald, Chandra et al. and Gorday et al. and further in view of Sugiura et al. (U.S. Patent No. 6,362,783).

Referring to claims 9 and 22, Gray et al., MacDonald, Chandra et al. and Gorday et al. teach the limitations of claims 9 and 22, but do not teach utilizing the coordinate representation of initial points and destination points to determine the direction of travel of a particular wireless network device at a given time within the wireless network. Sugiura et al. teaches utilizing the coordinate representation of initial points and destination points to determine the direction of travel of a particular wireless network device at a given time within the wireless network (Column 21, Lines 26-40). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al., MacDonald, Chandra et al. and Gorday et al. with the teaching of Sugiura et al. teaches utilizing

the coordinate representation of initial points and destination points to determine the direction of travel of a particular wireless network device at a given time within the wireless network to determine whether the position estimation is correct (Column 21, Lines 30-31). Gorday et al teaches using a vector coordinates generation module (0012 and 0016).

Referring to claims 10 and 23, Gray et al further teaches wherein utilizing the coordinate representation of the initial points and the destination points to determine the distance traveled by the particular wireless network device at a given time (0021). Gorday et al teaches using a vector coordinates generation module (0012 and 0016)

Referring to claims 11 and 24, Gray et al., MacDonald, Chandra et al. and Gorday et al. teach the limitations of claims 11 and 24 but do not teach utilizing the coordinate representation of the initial points and the destination points to calculate the speed traveled by the particular wireless network devices at a given time. Sugiura et al. teaches utilizing the coordinate representation of the initial points and the destination points to calculate the speed traveled by the particular wireless network devices at a given time (Column 21, Lines 32-35). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al., MacDonald, Chandra et al. and Gorday et al. with the teaching of Sugiura et al. teaches utilizing the coordinate representation of the initial points and the destination points to calculate the speed traveled by the particular wireless network devices at a given time to determine whether the position estimation is correct (Column

21, Lines 30-31). Gorday et al teaches using a vector coordinates generation module (0012 and 0016)

Referring to claim 12, Gorday et al. further teaches wherein said vector coordinate generation module is configured for generating a relative two-dimensional or three-dimensional coordinate representation of distance vectors from said plurality of wireless network devices (Figure 1) to determine the relative two-dimensional or three-dimensional coordinates of each of the plurality of wireless network devices in a two-dimensional or three-dimensional plane (0012).

8. Claims 17 and 18 are rejected under 35 USC 103(a) as being unpatentable over Gray et al., MacDonald, Chandra et al. and Gorday et al. and further in view of Applicants admitted prior art.

Referring to claim 17, Gorday et al. further teaches wherein said signal strength vector coordinates generation module but neither Gray et al., MacDonald, Chandra et al. and Gorday et al. teach a two-dimensional coordinate system in a two-dimensional plane in response to determining any three points and their corresponding distances. Applicants admitted prior art teaches a two-dimensional coordinate system in a two-dimensional plane in response to determining any three points and their corresponding distances (0055). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al., MacDonald, Chandra et al. and Gorday et al. with the teaching of Applicants admitted prior art of a two-dimensional coordinate system in a two-

dimensional plane in response to determining any three points and their corresponding distances to indicate the relative locations of wireless network devices (0055).

Referring to claim 18, Gorday et al. further teaches wherein said signal strength vector coordinates generation module but neither Gray et al., MacDonald, Chandra et al. and Gorday et al. teach a three-dimensional coordinate system in a three-dimensional plane in response to determining any four points and their corresponding distances. Applicants admitted prior art teaches a three-dimensional coordinate system in a three-dimensional plane in response to determining any four points and their corresponding distances (0055). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gray et al., MacDonald, Chandra et al. and Gorday et al. with the teaching of Applicants admitted prior art a three-dimensional coordinate system in a three-dimensional plane in response to determining any four points and their corresponding distances to indicate the relative locations of wireless network devices (0055).

Allowable Subject Matter

9. Claims 13, 19 and 25-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The reason for allowable subject matter is provided below:

Referring to claim 13, the references sited do not teach a system as recited in claim 12, wherein said generating of relative two-dimensional or three-dimensional coordinate representation is configured for utilizing a matrix of distances between each of said plurality of wireless network devices communicating in the wireless network to create the two-dimensional or three-dimensional coordinate representation.

Referring to claims19 and 30, the references sited do not teach a system as recited in claim 5, wherein said motion sensor module is configured for inputting motion within a user interface for said first device, or the other devices communicating on said wireless network.

Referring to claim 25, the references sited do not teach a system as recited in claim 24, further comprising recalibrating coordinate and position information of a new wireless network device when said new wireless network device enters or leaves the wireless network.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aljadeff et al. U.S. Patent Publication No. 2003/0232598 discloses method and apparatus for intrusion management in a wireless network using physical location determination.

Callaway, Jr. et al. U.S. Patent No. 6,745,038 discloses intra-piconet location determination and tomography.

Clare et al. European Patent Application No. 00106141.5 discloses distributed topology learning method and apparatus for wireless networks.

Gwon et al. U.S. Patent Publication No. 2004/0203904 discloses selective fusion location estimation for wireless access technology.

Krumm et al. U.S. Patent Publication No. 2004/0263388 discloses system and method for determining the location dynamics of a portable computing device.

Kyperountas et al. U.S. Patent Publication No. 2005/0143101 discloses method and system for determining a location of a plurality of units using sub-divided unit groupings.

Leitch U.S. Patent Publication No. 2005/0162271 discloses radio system apparatus and method of operating the radio system.

Light U.S. Patent Publication No. 2003/0236866 discloses self-surveying wireless network.

Messier et al. U.S. Patent No. 6,246,861 discloses cellular telephone location system.

Meunier et al. U.S. Patent Publication No. 2005/0130677 discloses mobile device and method for determining location of mobile device.

Robinson et al U.S. Patent Publication No. 2005/0233748 discloses method and apparatus for locating devices.

Shi et al. U.S. Patent No. 6,597,915 discloses system and method for updating location information for distributed communication devices.

Zegelin U.S. Patent Publication No. 2005/0185615 discloses WLAN roaming based on location.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Ewart whose telephone number is (571) 272-7864. The examiner can

normally be reached on M-F 7am - 4pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571)272-7872. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-2600.

Ewart
November 15, 2005

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